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(12) PATENT
(19) AUSTRALIAN PATENT OFFICE

(11) Application No. AU 200018463 B2
(10) Patent No. 753074

(54) Title
Template for wall openings

(51)⁷ International Patent Classification(s)
E04G 015/02

(21) Application No: 200018463

(22) Application Date: 2000.02.21

(30) Priority Data

(31) Number
PP8926

(32) Date
1999.02.26

(33) Country
AU

(43) Publication Date : 2000.08.31

(43) Publication Journal Date : 2000.08.31

(44) Accepted Journal Date : 2002.10.10

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(56) Related Art
GB 2265932

COMMONWEALTH OF AUSTRALIA
Patents Act 1990

COMPLETE SPECIFICATION FOR A STANDARD PATENT

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Invention Title:

"TEMPLATE FOR WALL OPENINGS"

The following statement is a full description of this invention, including the best method of performing it known to me:

TEMPLATE FOR WALL OPENINGS

This invention relates to a template for the formation of openings in walls such as for doorways, windows and air conditioners. The invention has particular application to the formation of such openings in masonry walls, especially concrete block walls and for illustrative purposes reference will be made to such application. However, it will be appreciated that the invention could be used for the formation of openings in other walls although probably not to the same advantage.

10 In the construction of timber homes or timber and brick veneer homes, the builder typically forms window and door openings in the timber frame to suit standard size windows and doors as the case may be and once the windows and door frames are fitted the bricks are then butted up to them. However, in the
15 case of concrete block homes, the windows and sometimes the doors are fitted after construction of the walls. The openings are generally formed by the block layer to approximate sizes only and typically are formed to a half block, three quarter block or full block size, for example three, three and a half, three and three
20 quarters or four blocks wide and so on. Since there are variations in concrete block size and the mortar joints also vary in thickness there are variations in the size of the window openings formed. As a result, glaziers are required to measure the openings on site after the walls are constructed and then to
25 manufacture the windows to suit. It will be appreciated that custom built windows are more expensive to produce than standard size windows and also there is a significant cost associated with on-site measurement of the window and door openings. Furthermore, the system of manufacturing windows to suit the openings causes
30 delays in building construction because the window manufacturer cannot commence until the walls have been constructed.

One object of the present invention is to provide templates which can be used by block layers or builders to construct walls with predetermined window and/or door opening sizes within a
35 satisfactory tolerance whereby windows and doors can be ordered from the building plan and fitted after the walls have been constructed. It is another object to provide a template which will assist block layers in maintaining window and door jambs plumb and straight. It is another object to provide templates.

which will support lintel blocks from the sill in a suitable and effective manner.

With the foregoing in view, this invention in one aspect resides broadly in a template for forming a window opening in a
5 block wall, including:

an elongate base section adapted to rest on a sill, concrete floor or other foundation;

two spaced apart elongate wall sections operatively connected at one of their respective ends to the opposite ends
10 of said base section and extending generally perpendicularly therefrom and being adapted in use to form an abutment against which blocks may be layed to form spaced apart window jambs;

an elongate upper section operatively connected at its opposite ends to the other ends of said spaced apart wall
15 sections and extending therebetween and being adapted in use to support or at least partially support blocks thereon to form a window lintel;

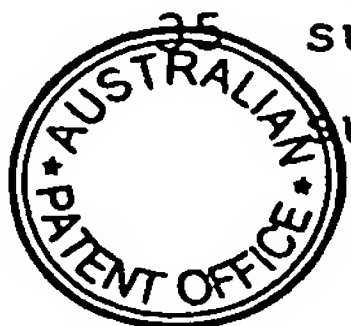
one of said base section and said upper section being selectively movable relative to the other of said base section
20 and said upper section and one of said wall sections being selectively movable relative to the other of said wall sections, from respective extended positions in which the template approximates the size of the opening to be formed to respective retracted positions in which the template is smaller than the
25 opening to be formed and can be withdrawn from the opening once formed, each of said base section, said wall sections and said upper section including an inner elongate portion and an outer elongate tubular portion, said inner portion being telescopically mounted in said outer tubular portion for sliding movement
30 between said respective retracted and extended positions and each said inner elongate portion being releasably secured to its respective outer elongate tubular portion when in the extended position by a pin extending through aligned apertures in respective ones of said inner and outer elongate portions.



Terms such as upper, lower, base, top and side are used herein for the purpose of description and illustration of the invention in the position it would normally be used in the formation of a window and door openings during wall construction and are not intended to limit use of the invention to any particular orientation. Additionally, the term "window" is intended to encompass "window" and "door" so that terms such as "window opening" and "window jamb" are intended to refer to both window and door openings or similar openings and both window and door jambs unless clearly not appropriate as well as the side walls or jambs of other openings such as for air conditioners. Further, the term "block" is intended to encompass concrete blocks as well as similar blocks constructed of other materials and also other forms of masonry such as sandstone or limestone blocks and bricks unless not appropriate. In a preferred form each of the said sections includes two pieces of Square Hollow Section Steel(SHS) tube which are telescoped together to be length adjustable by a piece of smaller SHS tube. Typically, the sections are constructed of 40mm by 40mm SHS and are telescoped together by a piece of 35mm by 35mm SHS, but for large spans other sections can be used if necessary, or alternatively intermediate support posts can be used.

Preferably, each of said base section, said wall sections and said upper section is constituted by an L-shaped part, one leg of each L-shaped part forming a portion of one of said base section, said wall sections or said upper section and the other leg forming the adjoining portion of the adjacent one of said base section, said wall sections and said upper section.

Preferably, a lintel support member is provided and adapted to be releasably connected to said upper section. Suitably, such a lintel support member is selected to be sufficiently wide to hold the lintel blocks effectively and be slightly shorter than the width of the opening to be formed so that it can be removed after wall construction. It is also preferred that the lintel support member be adapted for connection to the upper section in such a manner that pivoting relative to the upper section is



prevented. In a preferred form in which the upper section is constructed of SHS tube, the lintel support member includes engagement means such as spaced apart lugs adapted to abut the side faces of the SHS tube thereby preventing pivoting.

- 5 Preferably, the template includes locating means connected to said base section or operatively associated with said base section for locating the base section in a desired position on

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a window sill and preferably such locating means is adapted to engage with the sloping face of the sill in a suitable manner to locate the base section against the sill rebate.

5 In order that this invention may be more clearly understood and put into practical effect, reference will now be made to the accompanying drawings which illustrate preferred forms of the invention and wherein:

10 Fig. 1 is an elevation of a template according to the present invention in use in a concrete block wall for the formation of a standard size window opening, with an overhanging sill;

Fig. 2 is an enlarged view of part of an L-shaped part of the template of Fig. 1 marked as detail "A";

15 Fig. 3 is a sectional end elevation of part of the template of Fig. 1 along line 1a-1a showing a lintel being supported;

Fig. 4 is a sectional end elevation of part of the template of Fig. 1 along line 1b-1b in use forming the window opening with an overhanging sill; and

20 Fig. 5 is a sectional end elevation of part of the template of Fig. 1 along line 1b-1b but illustrating its use in forming the same sized window opening as in Fig. 1 but with a flush sill.

25 The template 10 illustrated in the drawings is adapted for use in the formation of a window opening 11 to be formed in a concrete block wall 12 during construction. The concrete block wall includes a sill 13 constructed of six abutting sill blocks 13a and a window head or lintel 14 constructed of four abutting lintel blocks 14a in the usual manner. The six end faces of the vertically adjacent blocks (or half blocks) 15a form one window jamb 15 and similarly the opposite end faces of the vertically adjacent blocks 16a form the other window jamb 16.

30 The template has a base section 18 adapted to rest on the sill, two spaced apart side wall sections 19 and 21 against which the end blocks 15a and 16a respectively are abutted, and an upper section 22 which provides temporary support for the lintel blocks 14a until the concrete has cured sufficiently for the lintel to be self supporting, the four sections together forming a frame assembly which can be selectively extended and retracted. In the extended position the frame assembly is the same size as the window to be fitted to the opening formed in the blockwork.

It will be seen that the frame assembly includes four main L-shaped parts (or components) 23, 24, 25 and 26, each of which forms a corner of the frame assembly. In other words, one leg of each "L" forms a part of each section and the other leg forms part of the adjacent section. In the present embodiment each L-shaped component is made up of two pieces of 40mm by 40mm by 2mm SHS tubes welded together at one end at right angles and braced by an internal steel gusset 20.

Adjacent L-shaped parts are joined together by respective pieces of 35mm by 35mm by 3mm SHS tube 27 which are telescoped inside their respective legs, each joining tube being welded to one leg and telescopically slidable within the other leg of the adjacent component. It will be appreciated that this arrangement allows the opposite sections 19 and 21 or 18 and 25 to be moved relative to each other by sliding movement of the smaller joining tube within the larger tube. Each joining tube is selectively secured to the other leg of the adjacent L-shaped component by a securing pin 28 which extends through aligned apertures 29 and 30 provided in each respective smaller and larger tubes in order that the frame assembly can be secured in the extended attitude.

Three spaced apart locating feet 31, 32 and 33 are welded to the base section and are shaped to rest on the inclined face of the sill blocks thereby positioning the base section against the rebate 34 of the sill blocks. Three similar plates 35 are welded to the back face of the base section and are adapted to rest on the upper face of the sill block inwardly of the rebate. It will be appreciated that the feet engage with the sill blocks in a manner which assists in maintaining the template in an upright attitude.

The template may be used for a flush sill as shown in Fig. 5, preferably with the addition of a sub-frame 36 which is shaped to provide a temporary rebate 37 corresponding to rebate 34. The height of the presently available flush sills is typically 10 mm less than that of the overhanging sill and accordingly 6mm packing plates 38 are provided so that the same template can be used with either a flush sill or an overhanging sill to form the same predetermined standard size window opening.

As shown in Fig. 3 a piece of C-section channel 41 rests on the upper section 25 to provide a suitably wide stable flat

surface on which the lintel blocks 14a can be laid. The channel in this embodiment is a C150-19 steel purlin but heavier or lighter section can be used depending on window opening size and other factors. Similarly, if large size window openings are to be formed the upper section can be supported by intermediate temporary posts 44. In this embodiment, the purlin is held in position on the upper section 22 by two pairs of spaced apart pairs of lugs 42 and 43 which depend from the underside of the purlin and engage on opposite side faces of the upper section.

10 The purlin 41 is approximately 30mm shorter than the width of the window opening to be formed as can be seen in Fig. 1 and thus when the template is in the retracted position the purlin does not prevent removal of the template from the window opening once formed.

15 In use the block layers lay the blocks up to sill height and then mount the template on the sill in an upright position. If necessary the template can be temporarily braced in the upright position. The wall is then constructed with the jamb blocks 15a and 16a butted hard up against the side wall sections 19 and 21.

20 Normally, the jamb blocks will be sufficient to hold the template in the upright position relying on friction between the surfaces and the usual run-out of mortar, but in high wind conditions or in the construction of high walls, it may be necessary to temporarily brace the template while the wall is being constructed. The lintel blocks are laid in the normal manner on top of the C-section purlin 41 and the lintel filled with concrete later also in the normal manner. Once the lintels have cured sufficiently to be self supporting, the pins 28 can be removed from the apertures 29 and 30 so that each joining tube

25 can slide within one leg of its adjacent L-shaped component whereby the upper section can be lowered relative to the base section (the inner tubes 27 sliding within the respective legs of the L-shaped sections) and similarly the side wall section 21 can be moved towards the side wall section 19 (the respective inner tubes 27 sliding in the respective upper and base sections). The template is then in the retracted position and can be removed from the wall to leave an accurately formed window opening of a predetermined standard size. The builder can then fit standard sized windows to the opening and seal around the

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window frame in the normal manner with a window frame sealing compound.

It should be understood that while the foregoing description has been given by way of illustrative example of the invention, 5 modifications and variations thereto as would be apparent to persons skilled in the art are deemed to fall within the broad scope and ambit of this invention as is defined in the appended claims.

The figure shows four 4x4 dot patterns arranged vertically. The first pattern represents the digit '0', the second '1', the third '2', and the fourth '3'. Each pattern is composed of black dots on a white background.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS

1. A template for forming a window opening in a block wall, including:

an elongate base section adapted to rest on a sill, concrete
5 floor or other foundation;

two spaced apart elongate wall sections operatively
connected at one of their respective ends to the opposite ends
of said base section and extending generally perpendicularly
therefrom and being adapted in use to form an abutment against
10 which blocks may be layed to form spaced apart window jambs;

an elongate upper section operatively connected at its
opposite ends to the other ends of said spaced apart wall
sections and extending therebetween and being adapted in use to
support or at least partially support blocks thereon to form a
15 window lintel;

one of said base section and said upper section being
selectively movable relative to the other of said base section
and said upper section and one of said wall sections being
selectively movable relative to the other of said wall sections,
20 from respective extended positions in which the template
approximates the size of the opening to be formed to respective
retracted positions in which the template is smaller than the
opening to be formed and can be withdrawn from the opening once
formed, each of said base section, said wall sections and said
25 upper section including an inner elongate portion and an outer
elongate tubular portion, said inner portion being telescopically
mounted in said outer tubular portion for sliding movement
between said respective retracted and extended positions and each
said inner elongate portion being releasably secured to its
30 respective outer elongate tubular portion when in the extended
position by a pin extending through aligned apertures in
respective ones of said inner and outer elongate portions.

2. A template according to Claim 1, wherein each of said base
section, said wall sections and said upper section is constituted
an L-shaped part, one leg of each L-shaped part forming a



portion of one of said base section, said wall sections or said upper section and the other leg forming the adjoining portion of the adjacent one of said base section, said wall sections and said upper section.

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3. A template according to Claim 2, wherein each leg of said L-shaped part includes an outer elongate portion extending from the junction of said two legs.

10 4. A template according to Claim 3, wherein at least two of said L-shaped parts include an inner elongate portion extending from the free end of one of said outer elongate portions.

15 5. A template according to any one of the preceding claims, including a lintel support member releasably connected to said upper section.

20 6. A template according to Claim 5, wherein said lintel support member is selected to be slightly shorter than the width of the opening to be formed.

25 7. A template according to Claim 6, wherein said lintel support member is a C-section channel with a pair of spaced apart lugs secured to the inner face of the web near each end, said lugs being adapted to abut the side faces of said outer elongate tube of said upper section.

30 8. A template according to any one of the preceding claims, including locating means connected to said base section or operatively associated with said base section for locating the base section in a desired position on a window sill.

9. A template according to Claim 8, wherein said locating means is adapted to engage with said base section and the sloping face of the sill so as to locate the base section against the sill



10. A template according to Claim 9, wherein said locating means includes two or more spaced apart front lugs welded to the base section and extending forwardly therefrom and shaped to rest on the inclined face of the sill blocks, and two or more spaced
5 apart rear lugs welded to the base section and extending rearwardly therefrom and adapted to rest on the upper face of the sill block rearwardly of the rebate.

10 11. A template as hereinbefore described with reference to the drawings.

12. A method of forming a wall opening including constructing a foundation such as a window sill, mounting a template according
15 to any one of Claims 1 to 11 on the foundation, and laying blocks one on top of the other with the end faces of the blocks abutting the outer faces of the respective elongate wall sections of said template.

Dated this 23rd day of July 2002

GREGORY ASHBY

by his Patent Attorneys

AHEARN



ABSTRACT

A template (10) for forming a window opening (11) in a block wall (12), including:

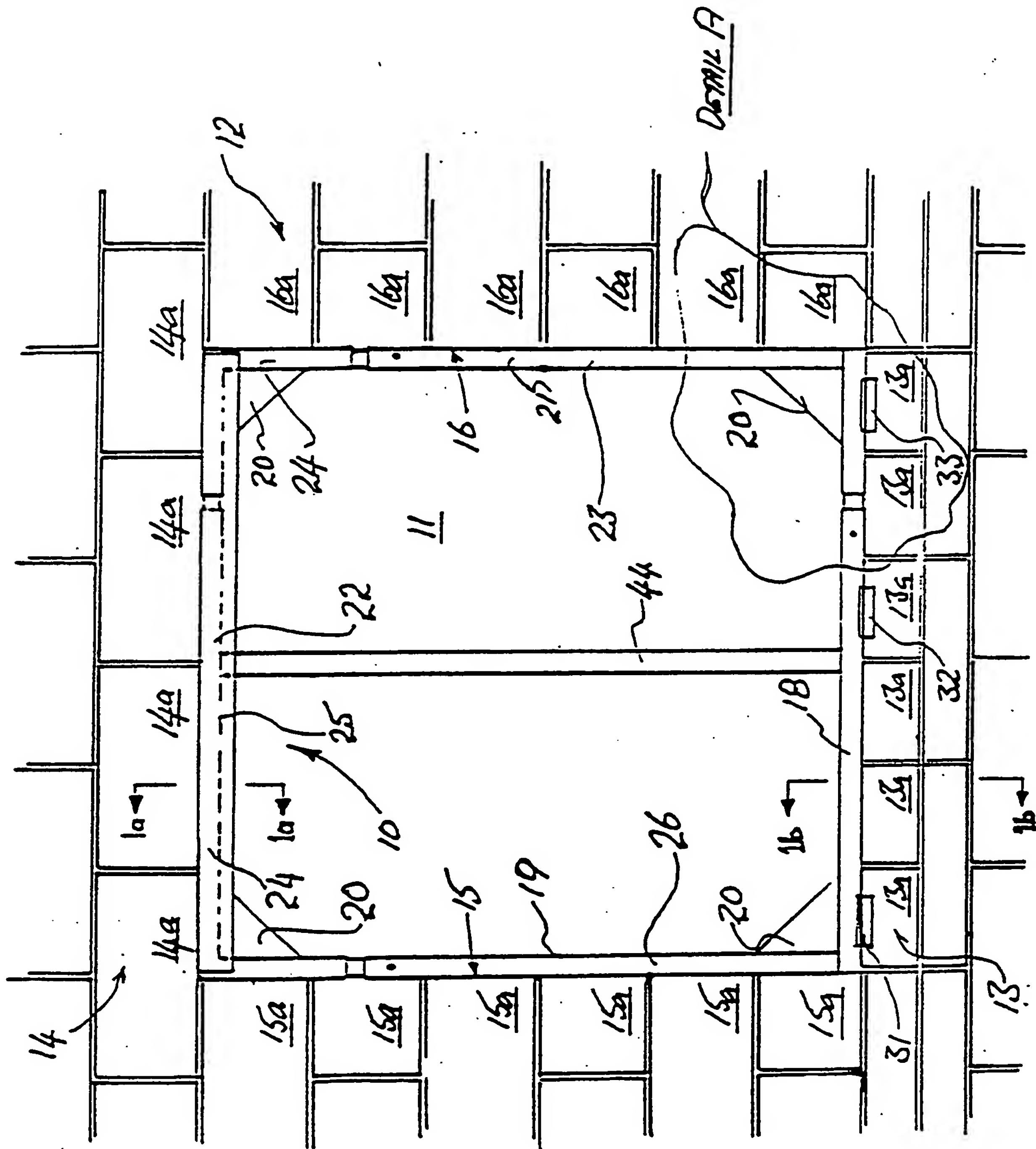
an elongate base section (18) adapted to rest on a sill,
5 concrete floor or other foundation;

two spaced apart elongate wall sections (19, 21) operatively
connected at one of their respective ends to the opposite ends
of said base section and extending generally perpendicularly
therefrom and being adapted in use to form an abutment against
10 which blocks may be layed to form spaced apart window jambs;

an elongate upper section (22) operatively connected at its
opposite ends to the other ends of said spaced apart wall
sections and extending therebetween and being adapted in use to
support or at least partially support blocks thereon to form a
15 window lintel;

one of said base section (18) and said upper section (22)
being movable relative to the other of said base section and said
upper section, one of said wall sections (19, 21) being movable
relative to the other of said wall sections (19, 21) from
20 respective extended positions in which the template approximates
the size of the opening to be formed and respective retracted
positions in which the template is smaller than the opening to
be formed and can be withdrawn from the opening once formed.

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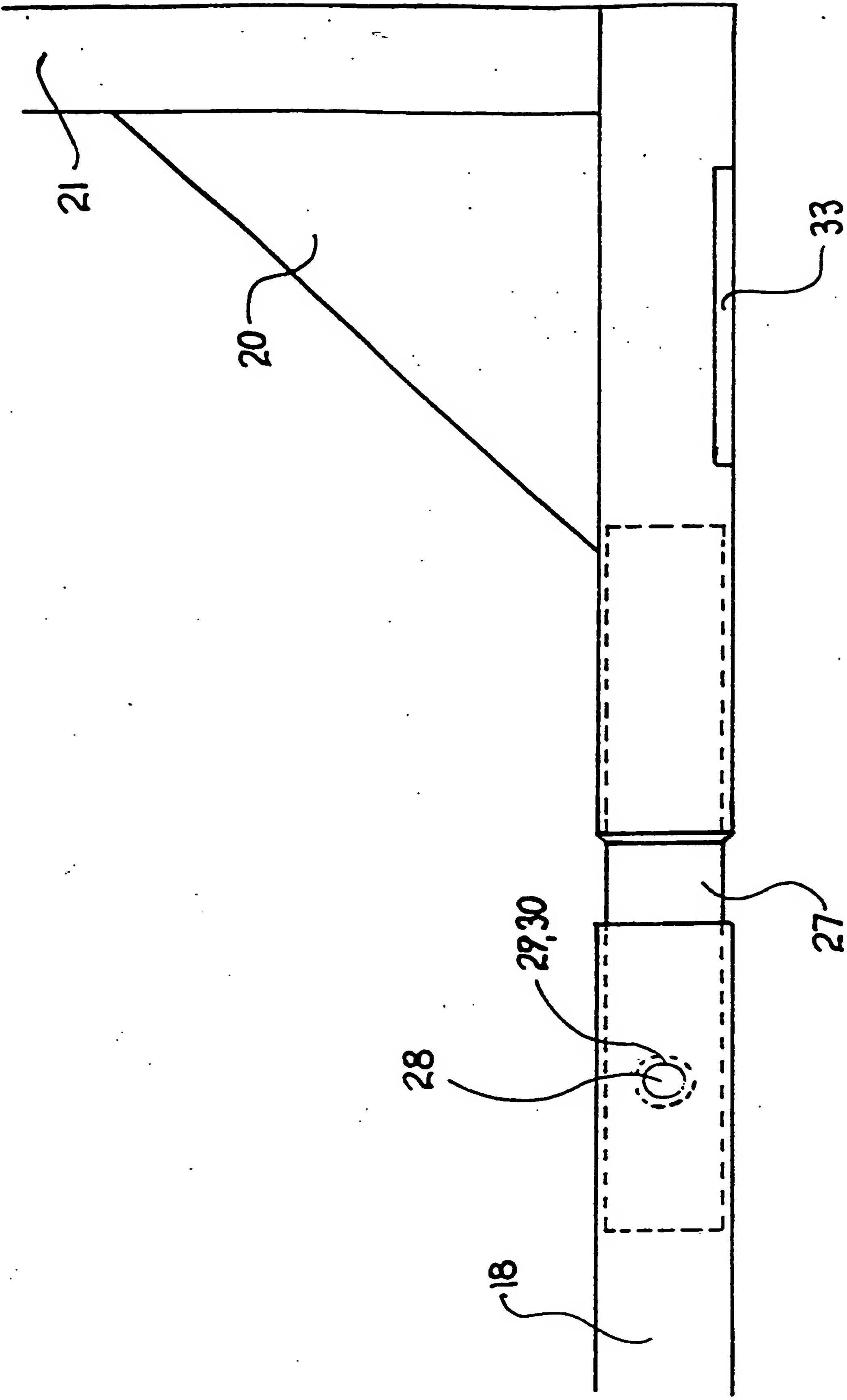
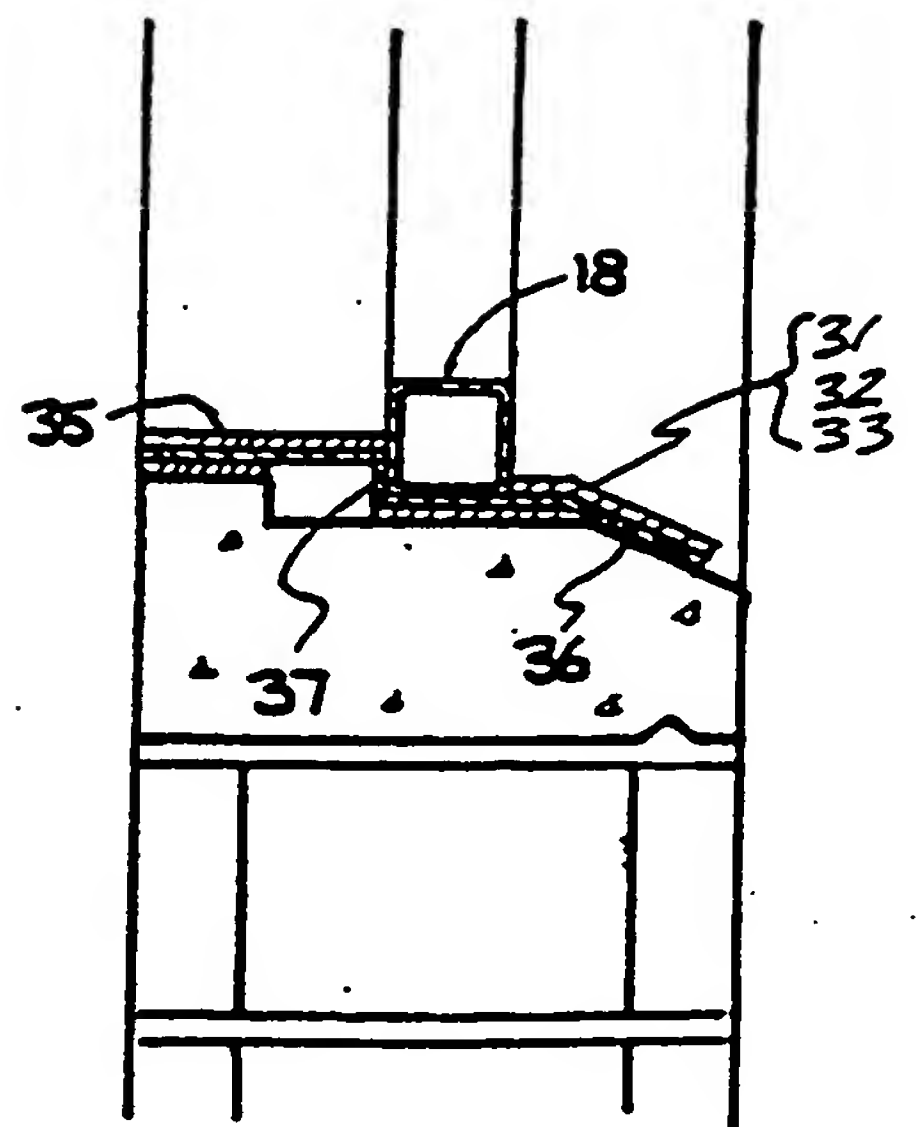
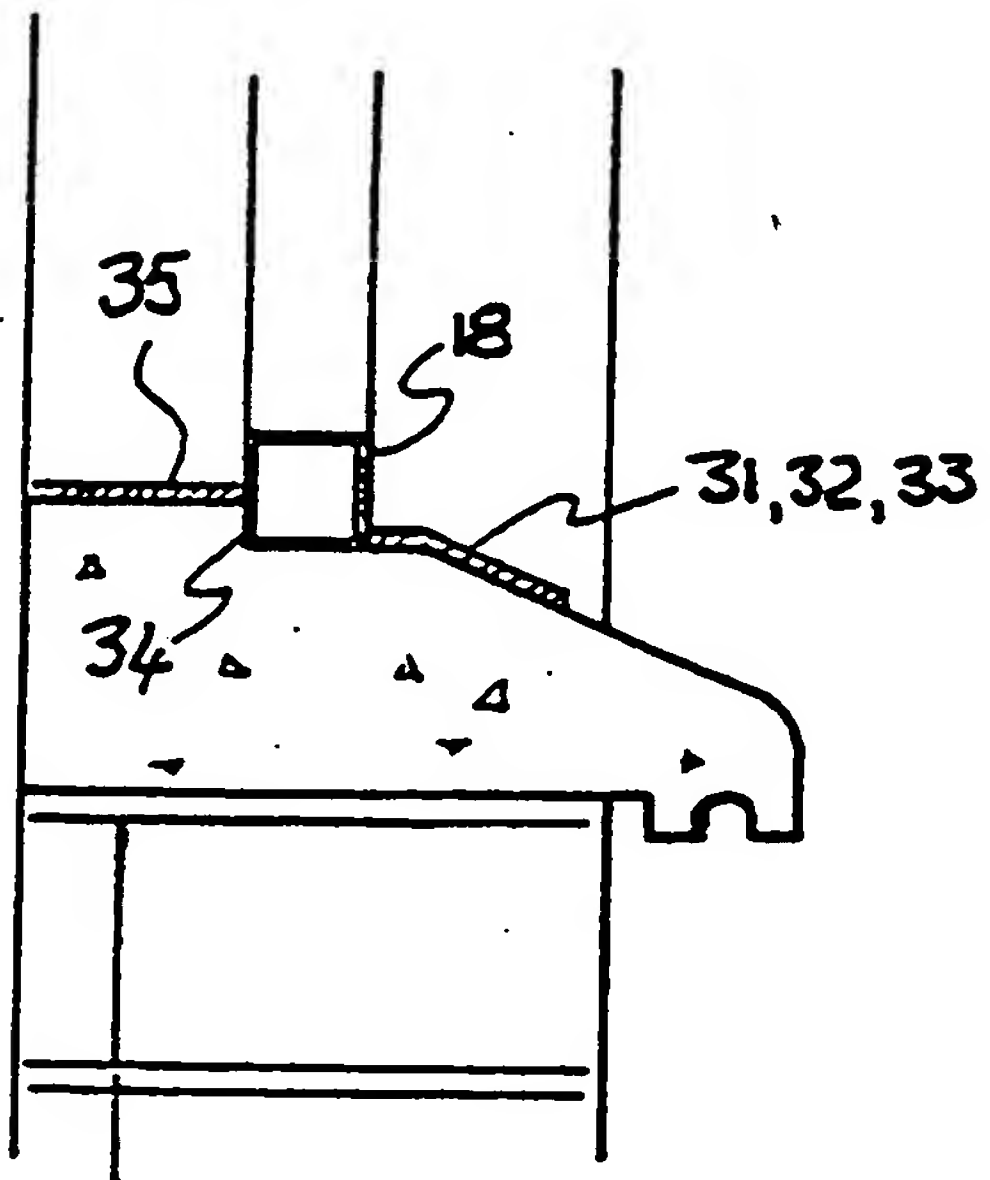
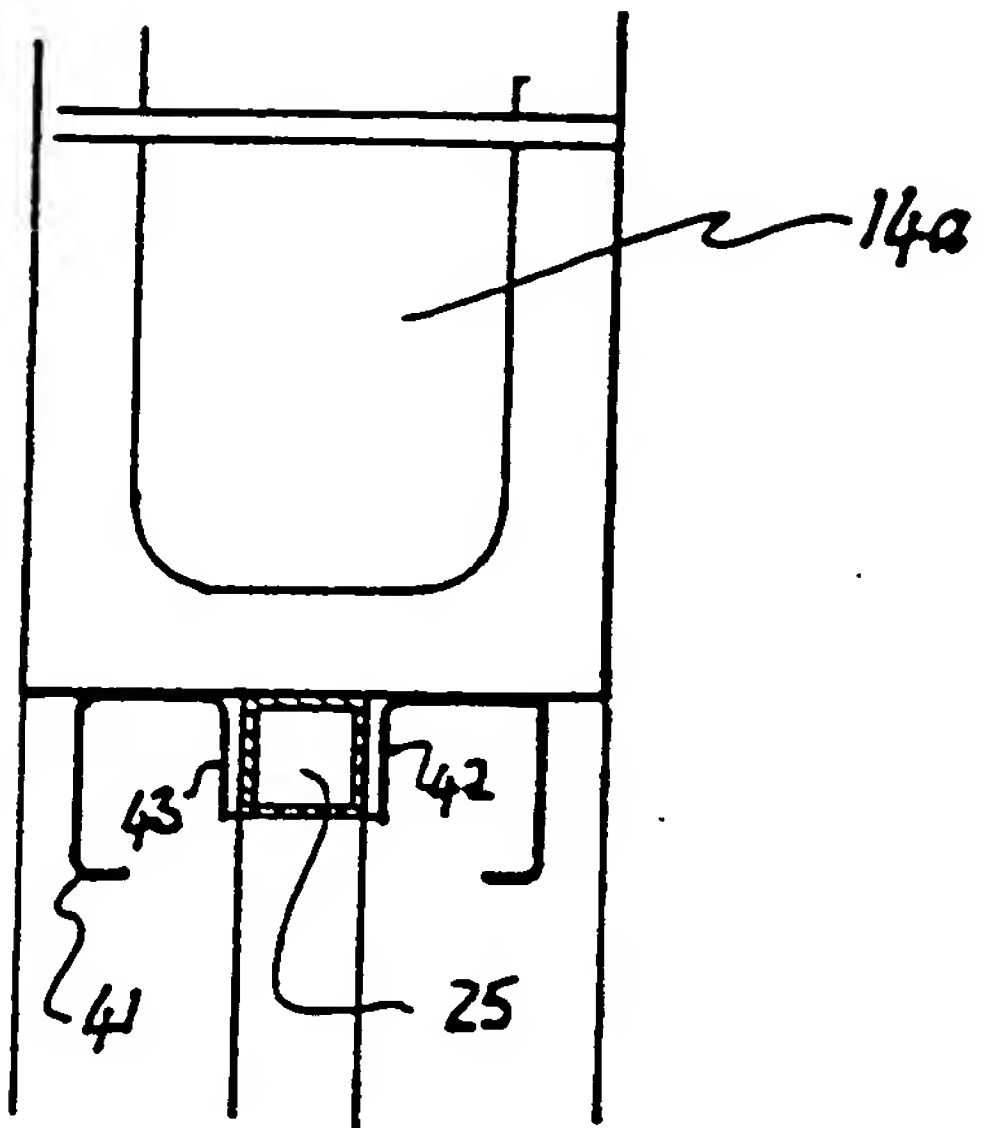


Fig 2



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